FRBSF Weekly Letter

January 16, 1987

The Shift to Services

When manufacturing industries, such as steel, textiles, and farm machinery contract, a nation loses some of its capacity to produce goods and its workers lose jobs. Between 1980 and 1985, total civilian employment in the United States increased by 7½ million persons, but manufacturing industries lost 800,000 jobs. This loss has led to concerns that our industrial base is shrinking, and that this apparent trend may reduce the potential growth rate of our economy in the long run.

The rapid growth of employment in service industries has more than offset the loss of manufacturing jobs, but the shift to services seems to have reinforced fears of a shrinking industrial base. Some argue that productivity growth is slower in the service industries than in those producing goods, and therefore that the long-run growth rate of the economy as a whole will be impaired as the economy shifts from producing goods toward producing services.

In this *Letter,* I argue that a secular shift toward the production of services does not necessarily imply lower productivity growth for the economy as a whole. Indeed, it may be a hallmark of healthy economic growth rather than a harbinger of economic retreat.

Trends

Contrary to popular perceptions, the shift in our economy from goods-production toward services is not new. It has been going on throughout the postwar era and even before. Charts 1 and 2 show the shares of service and manufacturing production, measured in terms of both output and employment, in the domestic economy since 1950. Among services, I include retail and wholesale trade, transportation and communications, finance, insurance and real estate, and miscellaneous services such as business and personal services, health care, and education.

Chart 1 gives no obvious sign that the trend toward services has accelerated in the last five years, although the recent trend does appear to have been somewhat more rapid than in the 1950s. Data extending further back in history indicate that the trend toward services has been going on since at least the nineteenth century. In contrast, Chart 2 shows two distinctly different trends in the manufacturing sector: the share of manufacturing in total output has remained roughly the same, while manufacturing's share of employment has fallen.

The data in these two charts imply differences in the behavior of productivity (output per worker) between the two sectors. The stable share of manufacturing in total U.S. production despite its declining share of the labor force reflects the rapid growth in the productivity of labor employed in that sector. In the service sector, in contrast, output and employment have grown at similar rates, which suggests, on the surface, a much poorer productivity record.

Interpretation

There are several reasons to be cautious in concluding from these data that the shift to services will damage the potential of our economy to grow in the long run. First, in several service industries, output per worker has grown much more rapidly than productivity in manufacturing. One example is the communications industry, where output per full-time worker has grown at an annual rate of 5.0 percent since 1950, compared to 2.6 percent growth in manufacturing and 1.2 percent for the domestic economy as a whole.

Second, our measures of output, and hence productivity growth, in services may be biased downward because it is more difficult to measure improvements in the quality of services than in the quality of goods. Measures of output in services are constructed by deflating the dol-

lar values of expenditures on services by estimates of the change in the prices of services. Often, however, service prices rise because of improvements in the quality of services. But these improvements are difficult to measure because there is no physical unit of "standard quality" to serve as a benchmark. For example, hotel room prices may increase in partial reflection of greater comfort, but it is difficult to quantify improvements in "comfort." This difficulty in measuring quality improvements in services may mean that our measures of the prices of services are biased upward, and hence that our measures of the growth of output in service industries are biased downward.

Measuring quality improvements is especially difficult for those industries in which technological advance has taken the form of entirely new products rather than improvements to existing products. Airline transportation, telecommunications, fast food chains, and financial services such as automatic teller machines and credit cards are prominent examples. The resulting increase in output may not be adequately captured in existing data for those industries. For example, airline transportation has largely replaced railroads for inter-city passenger travel in the last thirty years. Because this development is not treated as an improvement in quality within the overall category of inter-city transit, but rather as a whole new product, the dramatic increase in output that took place when planes replaced trains may be missed.

Finally, to a considerable extent, the decrease in the share of manufacturing in total employment has been the indirect result of the sector's technological dynamism. As productivity in goods production has increased, the relative prices of goods have fallen and indirectly increased the real incomes of workers in both goods- and service-producing industries. Since households have chosen to enjoy their rising real incomes by buying more services, the rapid productivity advance in goods production has been reflected in more of the national income being spent on services. The greater demand for services generates more jobs in businesses that produce services, while, over time, productivity growth in goods production frees workers from the goods-producing industries to move into service jobs. The movement of workers out of agriculture throughout United States history reflects the same sort of process at work.

The rising share of services in total output may dampen the swings in the economy associated with the business cycle. Because goods are durable and can be stored, producers tend to add to their inventories when business is strong and to draw them down when business is weak. Similarly, households tend to accelerate or delay purchases of durable goods in response to changes in current economic conditions. These are important reasons cyclical movements in the economy tend to be cumulative. When services make up a larger share of national output, these cumulative processes may be less pronounced. Thus a beneficial side-effect of a more service-oriented economy may be less severe cyclical swings in production and employment.

Conclusions

The secular shifting of resources among industries is a hallmark of economic growth. As income levels in our economy increase, and relative prices change, consumer demands change and, in response, the composition of output also changes. At the same time, above-average productivity growth in some sectors makes it possible over time for some industries to release workers for employment elsewhere.

Chart 1
Share of Service Industries in
National Output and Employment

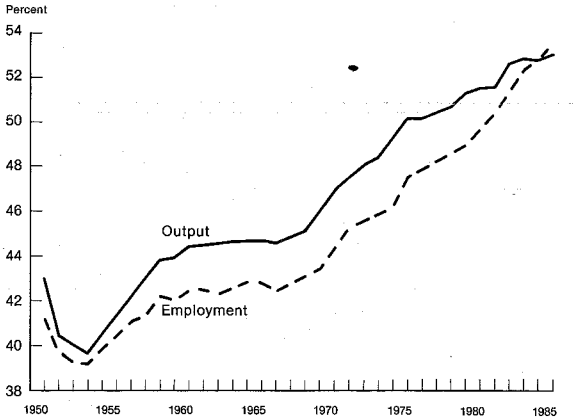
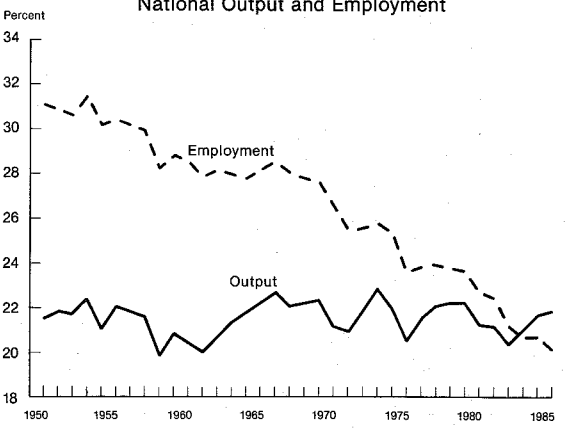


Chart 2
Share of Manufacturing in
National Output and Employment



Contrary to popular opinion, there has not been any noticeable acceleration recently in the gradual shift of the economy away from producing goods toward producing services. The trend over the last five years appears consistent with trends established as far back as the nineteenth century. Moreover, the data suggest that the rate of productivity growth in some service-producing industries is at least as high as the rate in traditional goods-producing industries, especially after taking account of a probable downward bias in measures of productivity growth in services.

Thus, the secular trend toward service production may be a sign of the strength of the U.S. economy rather than a cause for concern. The trend does not necessarily imply a slower rate of advance in overall productivity, but instead reflects the ability of sectors with rapid productivity growth to release workers to take jobs elsewhere.

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BANKING DATA—TWELFTH FEDERAL RESERVE DISTRICT

(Dollar amounts in millions)

Selected Assets and Liabilities Large Commercial Banks	Amount Outstanding 12/24/86	Change from 12/17/86	Change from 12/25/85 Dollar	Change from 12/25/85 Percent[7]
Loans, Leases and Investments[1] [2]	207,957	2,878	7,129	3.5
Loans and Leases[1] [6]	187,334	2,481	4,964	2.7
Commercial and Industrial	53,755	1,932	1,545	2.9
Real estate	67,458	− 2	1,291	1.9
Loans to Individuals	39,958	− 64	1,427	3.7
Leases	5,586	− 3	86	1.5
U.S. Treasury and Agency Securities[2]	13,081	329	2,485	23.4
Other Securities[2]	7,542	68	− 320	− 4.0
Total Deposits	212,335	3,439	8,603	4.2
Demand Deposits	59,413	2,996	7,528	14.5
Demand Deposits Adjusted[3]	39,977	406	5,778	16.8
Other Transaction Balances[4]	18,972	179	4,249	28.8
Total Non-Transaction Balances[6]	133,950	265	− 3,173	− 2.3
Money Market Deposit Accounts—Total	46,682	− 87	860	1.8
Time Deposits in Amounts of $100,000 or more	32,004	164	− 5,780	− 15.2
Other Liabilities for Borrowed Money[5]	25,227	− 1,959	− 485	− 1.8

Two Week Averages of Daily Figures	Period ended 12/15/86	Period ended 12/1/86
Reserve Position, All Reporting Banks		
Excess Reserves (+)/Deficiency (−)	10,054	93
Borrowings	4	23
Net free reserves (+)/Net borrowed(−)	10,050	70

1 Includes loss reserves, unearned income, excludes interbank loans
2 Excludes trading account securities
3 Excludes U.S. government and depository institution deposits and cash items
4 ATS, NOW, Super NOW and savings accounts with telephone transfers
5 Includes borrowing via FRB, TT&L notes, Fed Funds, RPs and other sources
6 Includes items not shown separately
7 Annualized percent change